REMARKS

In the Office Action, claims 1-28 were rejected for lack of novelty under
35 U.S.C. § 102(e) based on U.S. Patent No. 6,644,202, issued to Duniam et al. (Duniam
'202). Applicants respectfully traverse the rejection. Nevertheless, a number of the
claims have been amended to eliminate the perceived inconsistencies and lack of clarity,
and/or to more clearly define the invention over the cited prior art. More specifically, 1-9
and 25-28 are withdrawn, and claims 10-24 remain pending in this application. Duniam
'202 fails to teach or suggest the invention as recited in any of pending claims 10-24.

The system disclosed in Duniam '202 remotely programs detonators using a
stationary firing unit. In contrast, the claimed invention relates to a handheld
programming unit configured to program detonators at their respective locations in the
field. The programming unit thus allows on-the-fly programming in the field, according
to the relative movement and direction of a field technician holding the programming
unit. Duniam '202 fails to teach or suggest this aspect of the claimed invention.

Claim 10 describes a method of programming a detonator, wherein the method
includes using a programming unit adapted to download blasting information, e.g., an
I.D. and/or a delay time, to a detonator. The blasting information is determined according
to the movement of the programming unit to the location of the detonator. For instance,
the programming unit in one embodiment programs detonators by automatically
determining their respective delay times according to the distance and direction traveled
by the technician walking in the field.

Duniam '202 fails to teach or suggest the claimed moveable programming unit.
Duniam '202 accomplishes programming, for safety reasons, by exclusively using a
stationary firing unit 38 (column 6, lines 14-17). Duniam '202 fails to teach downloading
to a detonator 14 by a moveable device. Duniam '202 does disclose a moveable memory
module 34 that may be taken to a detonator 14 to retrieve data pertaining to the location
and identity of the detonator 14, but the memory module 34 cannot download, or

program, a time delay or identifier into the detonator 14. The memory module 34 later uploads the location and identity information to a firing unit 38, which then programs the detonator 14 using a common trunk line 10. In contrast to the claimed invention, the memory module 34 of the Duniam '202 system does not convey information or data to the detonators.

A stationary control unit 32 of Duniam '202 is used to associate detonator I.D.'s 18 with the predetermined or user input delay times. Unlike the programming unit of Applicants' invention, the control unit 32 of Duniam '202 is immobile (column 5, lines 44-57 and column 4, lines 51-53). That is, the control unit 32 connects to the trunk line 10, not the individual branch lines 12 of the detonators 14. While the control unit 32 can be used to logically assign (or map out) delay times to detonators 14, it cannot, in any case, program the detonators 14. The control unit 32 merely downloads/stores the logical assignments in the memory module 34 (column 7, lines 54-56). The memory module 34 later uploads the assignments to the remote firing unit 38 for subsequent programming of the detonators 14. This differs from the handheld programming unit of claim 10, which allows for the in the field and on-the-fly programming. These features result in more efficient and effective blasting.

Duniam '202 is primarily concerned with matching predetermined delay times with preassigned detonator I.D.'s 18. Duniam '202 fails to teach, suggest or imply the objectives or benefits of in the field and on-the-fly programming. More specifically, Duniam '202 fails to teach or suggest "determining blasting information according to the moving of the programming unit to the first detonator." That is, according to the claimed invention the programming unit automatically determines the blasting information, based on the relative movement and/or the position of the unit. Duniam '202 has no comparable teaching or suggestion. Claim 10 is therefore novel over Duniam '202, and Applicants respectfully request reconsideration and allowance of 10. Each of the claims depending on claim 10 are allowable by virtue of their respective dependencies on an allowable

claim, and furthermore include at least one additional feature that further distinguishes over Duniam '202. For instance, claim 11 calls for determining an identifier for a detonator, and claim 12 increments the delay time according to the direction and unit. Applicants consequently submit that claims 11-17 are likewise in condition for allowance.

Claim 18 recites a method of discharging detonators, and includes automatically determining a desired delay time using a position determining device of the programmable unit. The programmable unit downloads the determined delay time and the respective identifier of each detonator. In contrast, the detonators in the Duniam '202 system arrive at a blast site preprogrammed with their I.D.'s 18. This preprogramming requires users to painstakingly record where the particular detonators are placed in the field, resulting in more bookkeeping and less flexibility, compared to the more direct processes of the present invention. Claim 18 is therefore novel over Duniam '202, and Applicants respectfully request reconsideration and allowance of 18. Each of the claims depending on claim 18 includes at least one additional feature, and thereby further distinguishes over Duniam '202. For instance, claim 21 calls for incrementing a predetermined delay time by a desired amount based on the distance and direction moved to a detonator.

Prior to the present invention, it was relatively easy for a technician in the field to become disoriented when working at a blasting site due to the thousands of nondescript blast holes. Claim 23 describes a method for assisting a technician in the field in locating specific detonators to solve this problem. To this end, the claim recites receiving from the programming unit positional data indicative of an actual location of the programming unit. The directional data is automatically determined relative to an expected location of a sought detonator. The directional data is then displayed to the technician in the field via the programming unit, e.g., using mapping software and/or directional arrows. Duniam '202 has no such teaching of directional data. Applicants respectfully submit that claim
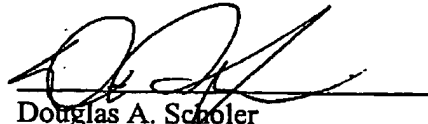
23 is novel over Duniam '202, and respectfully request the claim's reconsideration and allowance.

Claim 24 relates to a method for programming detonators, and includes "downloading at the location of the first detonator of first delay." As discussed above, the Duniam '202 system does not program detonators at their respective locations. This feature has additional significance in the context of claim 24, which allows a technician to program one detonator, then walk down the line to program a second detonator without having to manually determine a delay time for the second detonator (based upon the first detonator). Claim 24 is therefore novel over Duniam '202, and Applicants respectfully request reconsideration and allowance of claim 24.

Based upon the amendments to the claims and the remarks, Applicants respectfully submit that each of the pending claims is patentable over the cited prior art and is in condition for allowance. Applicants respectfully request that all of the claims be allowed without further delay. If there is any question or issue that can be resolved by telephone conference, the Examiner is invited to contact the undersigned attorney at the below number. Moreover, if there are any charges or credits that are necessary to complete this communication, please apply them to Deposit Account 23-3000.

Respectfully submitted,

Date

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